Engelmann (Geo. J.)

BATTEY'S OPERATION;

THREE FATAL CASES,

WITH

SOME REMARKS UPON THE INDICATIONS FOR THE OPERATION.

BY

GEORGE J. ENGELMANN, M.D.,

OF ST. LOUIS, MO.

Reprinted from the AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN, *Vol. XI., No. III., July*, 1878.

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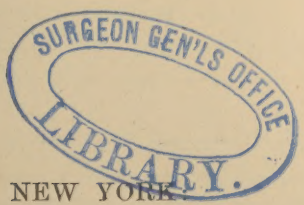

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The removal of the ovaries for the purpose of establishing the menopause, either to relieve the hopeless sufferer from chronic ovaritis and ovaralgia, and the incurable cases of long-continued uterine disease with menstrual exacerbation, or to check hemorrhage and limit the growth of uterine fibroids, is an operation so recent, so bold, and as yet so uncertain in its indications, that we have comparatively few cases on record.

Some brilliantly successful cases are related, also others in which recovery, but not relief from suffering, followed the hazardous operation; the fatal cases are rare, perhaps not all published.

It is not pleasant to report one's failures, but our failures are far more instructive than our successes; it is our failures that cause us to carefully reconsider the propriety of each step that

has been taken, to seek for better methods, and thus achieve happier results.

An analysis of my failures may serve as a warning and as a guide to others, and I have undertaken the unpleasant task of publishing the details of those three fatal cases as the best service I could render this young and promising operation.

CASE I.[1]—Mrs. S., æt. 42; in former years unusually strong and healthy; has had four children; never complained of menstrual suffering or irregularity.

In October, 1875, two years before the operation, she began to suffer from nightly attacks of asthma, which, at the time of their first appearance, came with great regularity soon after eleven o'clock, and lasted, according to their severity, for an hour or more, ending with a bronchial cough and expectoration; during the remainder of the night and the entire day the patient was free from the annoying symptoms. As the disease progressed, her suffering became continuous, the trouble persisting, though in a milder form, throughout the entire day, but aggravated by a gastric hystero-neurosis—nausea and fulness of the stomach. These symptoms began to increase in intensity a few days previous to the appearance of the menstrual flow, and continued unabated during the entire period of uterine congestion: the nauseated stomach refused all nourishment, while cough and asthma precluded sleep; her condition became more bearable as the flow disappeared, but continued throughout the intermenstrual period, again to become more trying at the approach of the next catamenia.

The case had gone from hand to hand, and the pharmacopeia had been exhausted by the numerous physicians consulted, without affording the patient more than temporary relief by the use of narcotics.

Dr. Otto Greiner, who afterwards referred the case to me, when first consulted, found that auscultation and percussion revealed but little, notwithstanding the grave pulmonary symptoms; while, upon vaginal examination, he discovered an elongated, acutely retroflexed uterus, movable and readily straightened by the sound; he introduced a sponge-tent; the patient soon began to feel more comfortable, and in less than twelve hours the annoying cough and the asthma completely disappeared. The tent was followed by an intra-uterine stem, and as long as this could be borne, without irritating the mucosa, the patient was free from the distressing symptoms which had so long harassed her; she discontinued her morphine injections, left her bed, again relished her food, and slept quietly during the night without fear of cough or asthma. The symptoms, as I have myself several times observed, would abate soon after the

[1] I have cited this case as an exquisite example of bronchial hystero-neurosis in my paper on the hystero-neuroses (Vol. II., Transactions Am. Gynecolog. Soc.).

introduction of the stem, to cease entirely within a few hours, but upon removal of the intrument, the former suffering was sure to return in from two to twenty-four hours. The bronchial and gastric symptoms responded with the greatest certainty and regularity to a change in the position of the womb.

The sensitive condition of the uterus made it necessary to remove the stem frequently, until at last Dr. Greiner was obliged to desist almost entirely from its use; it was then, in the spring of 1877, that I first saw the patient in consultation with him. I found her a careworn, haggard woman, mostly confined to her bed, with suffering look, emaciated to the last degree, excessively irritable and nervous; conditions as described by Dr. G.; both ovaries sensitive and somewhat enlarged, especially the left.

We again tried the intra-uterine stems which Dr. Greiner had before successfully used. They always afforded relief for a short time, but within a day or two, finally within a few hours, the patient was forced to remove them on account of the pelvic as well as general suffering caused by them. Retroversion pessaries did but little good, some proving decidedly injurious; pressure, even the slightest, on the hypertrophied posterior wall of the corpus uteri caused intense pain, and a fearful exacerbation of the symptoms, as was demonstrated by a glycerine cotton tampon which was introduced with a view of elevating the fundus. Morphine injections were her only relief.

Medication had been vainly tried; the causation was evidently uterine, but the irritable hyper-sensitive condition of the enlarged womb no longer permitted any local application; removal of the uterus and the ovaries, or of the ovaries alone, seemed the only remaining means of relief, and the patient was accordingly left in my charge.

I observed her throughout the summer of 1877, seeking to relieve the most urgent symptoms. The menstrual exacerbations grew more marked; as the time of the period approached, the urine was passed more frequently, the nose began to itch and the nightly attacks returned, growing more severe and of longer duration, so as to make her suffering continuous when the flow began; nausea and asthma were constant, also the bronchial cough with a copious, yellow, muco-purulent secretion. This painful condition continued throughout the menstrual period and slowly disappeared after the cessation of the flow; then, in the intermenstrual period, came a time of comparative comfort; she could sit up, her appetite was fair, neither asthma nor bronchitis troubled her; but, dreading the intense suffering of the approaching period, she begged for the operation which had been suggested to her, well aware of all its dangers.

I determined upon extirpation of the ovaries. Clinical experiment had shown the trouble to be uterine in its origin, but it was now confined in its fearful intensity to the period of pelvic congestion, and this I expected to do away with by establishing the menopause,

thus affording her one continued intermenstrual period, *i. e.*, a continued calm.

Some may urge that at 42 the change of life is so near at hand as to obviate the necessity of an operation, but her condition was such that she could not continue to suffer for years, not even for months, threatening suicide unless relieved. The chances were against this mere remnant of a woman, and Dr. Marion Sims, who saw the patient in August, although satisfied as to the propriety of the operation, thought that there was but little hope for the recovery of the patient, on account of her emaciation and extreme debility.

The patient having been carefully prepared, the *operation* was performed September 2d, 1877, fourteen days after the cessation of the menstrual flow, on a clear, cool day following a storm. The room, which had been thoroughly cleaned and well aired, was kept at a temperature of 75° F. to 80° F. and well saturated with moisture; Lister's antiseptic method was used to its fullest extent, carbolized sponges, carbolized spray, carbolized water for hands and instruments.

An incision of 3½ inches was made in the linea alba extending to within ¾ of an inch of the symphysis; the wound bled much more freely than was to have been expected in so cadaverous a subject; some of the vessels were secured by ligatures, others by the small bulldog forceps. The abdominal walls were almost completely atrophied, and the very vascular peritoneum was readily exposed and divided upon the director; some time was lost in checking the persistent oozing from this membrane; then the very fatty and vascular omentum was moved upward, and I introduced two fingers of the left hand to explore the pelvis; but as the chloroform could not be pushed to complete anesthesia, pulse and respiration having several times flagged, the contraction of the recti muscles was such that I could not operate freely, and I was obliged to enlarge the incision to 4½ inches; several coils of intestines escaped, and after they had been returned I was obliged to close the way by introducing four fingers of my left hand; they were somewhat numbed by the spray, and now constricted in the incision by the continued spasmodic contraction of the abdominal muscles, so that I was a little annoyed. I readily found the enlarged uterine fundus, which had been elevated by an assistant with two fingers in the vagina, and passing along the Fallopian tube, seized the left ovary between thumb and middle finger. It was about normal in size, not adherent, and yet I found it difficult to move it upward, notwithstanding the assistance rendered by pressure from the vagina; still holding the ovary with two fingers, I seized it firmly with a strong curved dressing forceps, and with difficulty succeeded in dragging it sufficiently into the incision to tie the mesovarium with a single ligature of heavy braided silk; the ovary was then cut away with curved scissors, leaving a pedicle of less than half the thickness of a lead pencil; the ligature was cut short and dropped.

The left ovary, which was somewhat larger and also without adhesions, was quickly found, and treated in precisely the same way.

The pelvic cavity was sponged, and but little blood found in it; the omentum was replaced as far as possible, and the wound closed with silk sutures; Lister's dressing was applied and covered with a heavy pad of carbolized cotton.

One and one-half ounces of chloroform were used during the operation, which lasted one hour and ten minutes.

After condition: The patient soon rallied from the effects of the operation, with a pulse of 94 and a respiration of 28; did not vomit for the first nine hours; then nausea, with a slight but irritating cough, set in, which readily yielded to a slight increase of the morphine doses ($\frac{1}{8}$ grain every three hours *subcutaneously*). Urine was drawn every four to six hours; morphine continued, and given more frequently as pain manifested itself. A few tablespoonfuls of milk and gruel was all the nourishment she could be induced to take; the mere sight of broth, beef-tea, milk punch, etc., nauseated her, as she had so long depended upon such diet for her sustenance; a little champagne and brandy with ice was well borne, but soon she refused everything but soda and toastwater; milk punch was given per rectum.

Abdominal pain was most severe soon after the operation, then gradually disappeared, and on the second and third days she was entirely free from it; early on the third day she complained of a pain in the lower ribs, while the pain in the back was much less than on the first day.

The pulse rose steadily from 94 to 100 on the second day, 114 on the fourth, and 120 on the fifth; as the pulse slowly but steadily increased, the respiration decreased in frequency; 28 to 30 per minute on the first day, it was but 22 on the second, 20 on the third, 14 to 18 on the fourth, at one time on the fifth day only 10; the highest temperature was 100.8° F., on the fourth day, ranging between 100° and 100.6° at other times. She died on the sixth day after the operation from inanition and sheer exhaustion.

Post mortem examination, sixteen hours after death: Abdomen greatly distended; abdominal wound thoroughly adapted, but not united; intestines distended with gas, their surface scarce reddened, showing but faint traces of peritoneal irritation, most distinct in the upper part of the abdominal cavity.

The uterus was normal in position, no longer retroflexed, not congested; its peritoneal covering was somewhat thickened and dimmed. No adhesions and no inflammation of the left broad ligament; the pedicle appeared as a rounded stump covered by a slight deposit of lymph; it had contracted so that the ligature was ready to slip off. About the pedicle of the right ovary there were some adhesions, in evidence of a slight inflammation in its vicinity; it was still firmly clasped by the ligature.

The omentum was somewhat injected; there was no fluid in the pelvic cavity. Liver, spleen, and kidneys healthy; lungs almost normal, no adhesions, somewhat emphysematous, but the bronchi free, nowhere enlarged, their mucous membrane perhaps a trifle thickened; heart small.

Case II.—Mrs. S., æt. 33, healthy and strong in girlhood; men-

struation regular and without pain until her eighteenth year, when she received a severe blow across the abdomen from a falling sign; this was followed by a burning pain in the right side and constant suffering for a considerable time; she became subject to fainting spells without loss of consciousness; intense pain preceded and followed the menses, and she frequently had a feeling as if something were jumping in her stomach; suffered from globus, etc.

Married eight years ago, never conceived; after marriage her troubles increased; she was a constant sufferer, especially during the last three or four years, from menstrual pain, headaches, pains in abdomen, breasts, and throat, generally accompanied by swelling of those organs; swelling of the abdomen was frequently followed by a watery discharge from the vagina; she was unable to work for months at a time, and often confined to her bed for weeks.

I first saw the patient in the summer of 1876, with Dr. Hoffmann, who had attended her for many years, mainly regarding her nervous and hysterical symptoms, but, thinking that he had discovered an abdominal tumor, consulted me with a view to operation.

I found her a bright mulatto, with an exquisite figure and well-rounded limbs, nervous and hysterical; left breast enlarged and painful, especially the nipple; the left ovarian region very sensitive, even slight pressure upon this part causing abdominal pain, swelling of the throat, choking sensation, inability to talk, and gasping for breath; but the most careful bimanual examination revealed but indistinct signs of some abnormal resistance in the vicinity of the left ovary—this was after a period of intense suffering and watery discharge. The uterus was normal in size, acutely anteflexed with an eroded os, some endocervicitis; passage of the sound intensely painful.

I made an application to the cervix, and advised astringent injections, and iodide with bromide of potash, and valerian.

The erosions readily healed, and the headache became much less constant and annoying; but her general condition grew slowly worse until the time of the operation, Feb., 1878, her symptoms, varying at times, remained very much the same; eyes pained, most in the morning, lids felt heavy and thick, vision was sometimes blurred or double; pain in the breasts, mainly the left, was at times so severe as to necessitate injections of at least $\frac{3}{4}$ grain of morphia; frequently felt as if water were moving in her left side; could not stand squarely on both feet, as it caused her pain in the left hip; the left anterior superior spine was painful on pressure, the pain radiating into the abdomen; rotation outward and abduction of the left leg hurt intensely, and caused pain in the knee; was obliged to draw her legs up in order to rest comfortably in bed; often had a feeling of contraction, shortening in the muscles of legs, hip, back and neck; could not stoop on account of the faintness and abdominal pain it caused, and was obliged to kneel in order to reach anything low. Many of these symptoms were aggravated during the period of menstrual congestion.

The catamenia were frequent when I first saw her, coming every two, or at most three weeks, either very profuse or lasting scantily

for six or eight days; later the flow came at longer intervals, irregular, and much less free.

Coitus was excessively and unbearably painful.

Memory began to fail; she frequently, even while in bed, complained of dizziness from which she almost always suffered if on her feet; at times seemed but half conscious, her actions beyond her control; every four or five months was seized with an epileptic attack of several hours' duration.

An interesting and puzzling feature of the case was the periodical discharge of large quantities of a clear, inodorous, watery fluid, coming every two or three months, apparently in no connection with menstruation, although sometimes preceding the flow. A period of great suffering preceded the discharge; the abdomen would swell, and was so much distended, especially in its upper third, under the ribs, that she could not fasten even the loosest clothing, and felt as if she must burst; at the same time complaining of severe pain in back and hips; and at these times the resistance in the left side was more distinct, evidently a cyst, a thin sack with fluid contents, which, however, I could at no time clearly outline; pressure upon the tumor gave her the feeling of squeezing a bladder full of water, caused intense local pain, sickness of the stomach, a choking sensation, and loss of voice; the right ovarian region, which was apparently free, did not so respond; the watery discharge, lasting several days, sometimes came in gushes; at others, would trickle away for hours, but was always very abundant, even so as to saturate the bed, and drip through upon the floor; at the same time she would pass small quantities of wine-colored urine, and I have myself drawn the dark urine from the not distended bladder, while the discharge was going on; this fact, together with the relaxation of the abdomen, and the diminution in the size of the tumor which followed the discharge, tempted me to consider the case as one of *hydrosalpinx* or *hydrops tubæ profluens* (Schroeder, p. 320, Scanzoni, Vol. II., p. 75); but chemical examination proved the fluid to be nothing but hysterical urine. It was perfectly clear, colorless, inodorous; specific gravity varying from 1002 to 1005; reaction acid, but scarce perceptible, and upon standing for a length of time, it had the odor of decomposing animal matter, and not of fermenting and alkaline urine; upon evaporation, the residue was found to contain oxalate of lime, urates, and urea, proving that the fluid could not possibly be secreted by a cyst, but must come from the kidneys.

I once gave jaborandi daily for one week, while the fluid seemed accumulating and the abdomen was very tense; she took at first an infusion of ʒ i. to ℥ iv. at a dose, later ʒ ij. and ʒ iij. to ℥ iv.; this relieved somewhat, but was followed by unusual symptoms, unilateral sweating; a cold perspiration appeared on the left half of the body, and continued eight or ten hours, the right side remaining perfectly dry; there was also a trembling of the limbs, and a numbness in the left lower arm and in the left side of the trunk.

Dr. Parvin kindly examined the patient with me, in June, 1877, and confirmed the diagnosis of that questionable tumor, which he described as a yielding resistance in the left side, a fluctuating tumor

with indistinct outline, possibly an ascitic fluid; this was at a time when she was enlarging.

Dr. Sims saw her in August, when her abdomen, which, by the way, was covered with almost two inches of adipose tissue, was more relaxed, and distinctly felt a cyst in the left side, but could not fix it; he considered this a typical case for Battey's operation.

Nothing seemed to relieve her suffering; tonics, anodynes, rest, all gave but temporary relief, while her condition grew steadily worse; the slightest exertion brought about that fearful "misery" in her left side; walking up a small flight of stairs was followed by a day's suffering; while in bed, a heavy step on the floor invariably sent a thrilling pain through her from the left side upward. Every possible means of relief which competent men could suggest had been tried in vain, and I determined upon the only course left—the extirpation of the ovaries, which I looked upon as the offending organs, most especially the left, which was probably in cystic degeneration; if the cyst should prove to be one of the tube or the broad ligament, it was determined to remove both cyst and ovary.

The operation was performed February 28th, 1878, four days after the cessation of the menstrual flow, but not in the most favorable surroundings. The utmost possible cleanliness was observed without resorting to the antiseptic method; a one-per-cent salt spray was used to moisten the atmosphere.

The incision was made at once from the navel to one-half inch above the symphysis, through one and one-half to two inches of adipose tissue; no bleeding; the peritoneum was readily exposed and incised; the intestines were pushed back and the fundus of the anteflexed uterus readily found, but passing from this along the Fallopian tube toward the left ovary, which the assistant endeavored to push up, it was with difficulty that I found this adherent and degenerated organ among the walnut-sized cysts; it was firmly seized with the forceps, but could not be drawn into the incision; one of the cysts was ruptured and the entire mass, the cystic ovary with a cyst of the parovarium, was finally tied in the depth of the pelvic cavity with a silk ligature which was cut short and dropped. A part of the omentum adherent to the ovary was also ligated. The right ovary, also adherent and in cystic degeneration, was easily found and tied, together with a cyst of the parovarium.

The pelvis was sponged, omentum replaced, and double silk sutures used to close the incision, which was covered with a Lister dressing.

The operation lasted just one hour; less than two ounces of chloroform were used; patient bore the anesthetic unusually well, did not vomit during or after the operation; pulse soft, normal, averaging 70 during the operation; traction upon the ovary was at once followed by a pallor of the face, sinking expression, and a sudden slacking of the pulse, which became very feeble, scarce perceptible, and only 40 per minute; as traction was diminished, the patient at once rallied, the pulse again became stronger and rose to 60, finally 70. The same symptoms were observed to follow each traction upon the ovary.

After-condition.—Patient rallied well from the operation with

her normal pulse of 76 to 80 ; morphine was given subcutaneously ; the usual treatment was followed ; the pulse slowly rose and, notwithstanding a very comfortable night, symptoms of peritonitis appeared on the morning of the second day ; by evening her condition seemed critical ; pulse 132 ; I gave her ℥ i. of quinine by subcutaneous injection in the course of three hours (chin. ℥ i., aq. ℥ ij.) ; marked improvement followed, pulse 120, fuller ; morphine relieved the violent quinine tremor ; she seemed to rally for some hours, but then steadily failed and died two and one-half days after the operation.

Post-mortem examination, eight hours after death : Abdomen considerably distended, incision united ; peritoneum and intestines scarce reddened ; no dulness of the peritoneal covering ; no adhesions either about the intestines or the abdominal wall, the uterus or the pedicles ; no lymph, only a very little of a brownish fluid in the pelvic cavity ; slight lymphatic exudation upon the posterior aspect of the *now straightened* uterus ; pedicles in excellent condition, rounded and coated with a yellowish lymph ; omentum reaching very far down and somewhat inflamed.

Case III.—Mrs. K., æt. 31 ; was afflicted with caries in childhood ; first menstruated in her 13th year ; the catamenia continued regular and painless, she herself being perfectly healthy. Soon after her marriage, in her 23d year, eight years ago, to a vigorous, strong man, the first symptoms of uterine trouble appeared, and since then her suffering has steadily increased, until, within the last six months, she has been totally unfit for work and confined to bed a great part of the time ; she has never conceived. Backache and hypogastric pain preceding each menstrual flow, and upon the first day of its appearance, inaugurated these years of suffering ; the flow was at some times scanty and at others profuse ; occasionally backache and exquisite hypogastric pain continued during the three or four days of its duration ; later the premenstrual suffering was augmented by headaches, which were so intense as to cause her to faint with pain ; menstrual hystero-neurosis of the stomach was very marked, the distention of the epigastrium not unfrequently terminating in vomiting ; a year ago she suffered so intensely from an intermenstrual backache, which left her during the continuance of the flow, that she was unable to move from her bed ; fainted very easily upon the slightest provocation ; has had several attacks of pelvic cellulitis. During the long period of her suffering has been in the hands of quite a number of physicians.

I saw the patient first in January, 1878, at the request of Dr. Summa, then in attendance, and of Dr. Baumgarten, who had been consulted in the case ; she had just recovered from an attack of pelvic inflammation and period of most excruciating menstrual suffering. I found her a very intelligent lady, considerably emaciated, with an appearance of long continued suffering. She had been a complete invalid for over six months, unable to undertake even the slightest household duties ; could, when feeling well, walk but very slowly and short distances ; for the past four weeks had been confined to her bed constantly ; she complained of unceasing backache, headache, hypogastric pain, and severe menstrual suffering ; in short,

she was slowly failing, unable much longer to resist the constant and increasing pains.

The abdomen was sensitive, especially so the right hypogastric region, while the left, though very tender, was less painful. The uterus was normal in size, anteflexed, with an elongated conical cervix pointing toward the symphysis; the sound entered readily; the right ovary was easily seized between the examining fingers; it was excessively sensitive, of the size of a small egg, and of a consistency which seemed to indicate a subacute inflammatory enlargement; *it appeared to be not adherent and movable;* the left ovary was smaller and less sensitive. Believing the suffering to be due to a morbid condition of the ovaries, and that the uterine flexion could be entirely neglected, I advised absolute rest, warm applications to the hypogastrium, nourishing diet with mild stimulants and tonics; later the hot vaginal douche and concentric blisters in the region of both ovaries; neither iodide of potash nor quinine were borne by the patient.

Her condition steadily improved, but although she now rested well, her appetite was good, and she gained in flesh, her sufferings remained the same; pain in back and sides was continuous, greatly increased by motion; the effort of walking from the bed, three or four steps to the rocking chair, was followed by more violent suffering; the menstrual period, however, was almost painless.

Further medication seemed useless; the disease of the ovaries, the source and centre of all the troubles, slowly progressed, notwithstanding the improvement in her general condition, and no treatment of any kind could check the advance of this chronic ovaritis; nothing short of a removal of the offending organs promised relief to the sufferer; well aware of the dangers of the operation, she not only gladly consented, but even urged its speedy performance.

Operation.—The most careful preparations having been made, I operated March 11th, 1878, five days after the cessation of the menstrual flow, observing all the precautions of the antiseptic method as taught by Lister.

Chloroform was first used, but the patient bearing it badly, and collapse threatening, ether was resorted to; pulse and respiration at once improved, and she was brought fully under the influence of the anesthetic. The abdominal incision, which was made fully four inches in length, was followed by a copious oozing of blood from the cutaneous vessels, giving some little annoyance; the patient was a bleeder; the flow having been stopped, the peritoneum was incised, and with two fingers of my left hand I entered the pelvic cavity, touching first the fundus of the uterus. I passed from this along the tube in search of the left ovary, but was unable to discover anything resembling that gland in feel; at the bottom of the pelvic cavity, near its left lateral wall, I found a number of small cysts and small soft bodies, which partially resembled loops of intestine, containing gas and feces; the mass was immovably attached to the floor of the pelvis. I next introduced my whole hand, but again finding nothing but this soft, nodular mass, I seized a part of it and endeavored to pull it up; it did not yield; I then grasped it with

the curved dressing forceps, but did not succeed much better in moving it; a temporary ligature of heavy braided silk was applied, and the mass seized with a second forceps; by steady traction upon both instruments, it was raised a little and a second ligature placed; a third was found to be necessary, and when finally I endeavored to cut the pedicle with the long scissors, in depth of the pelvis, I found that at least half of the degenerate ovary remained in place, attached to the surrounding tissues.

The right ovary was then sought, and was found to be equally low down and still more immovable than the left; a distinct cyst, as large as a hickory nut, was at once ligated, but the mass of the degenerated ovary, firmly bound with the broad ligament to the sides and base of the pelvis, could not be properly tied and removed, and to remove the ovary only in part, would be to leave the operation incomplete, and the patient exposed to the same sources of suffering as before; nothing could be done in that depth and darkness; the pulse was weakening, no time was to be lost, and after a brief consultation, the abdominal incision was enlarged to two inches above the navel, and the pelvic cavity fully exposed; the large nodular mass was then tied with a double ligature passed through the broad ligament, and entirely removed. The left ovary was again examined, and as it was found that considerable of the soft reddish tissue of the organ had been left, the fourth ligature was applied to it.

The pelvic cavity was sponged; the coils of the intestines, much reddened, with some lymph here and there upon their peritoneal surface, were slowly returned, and the incision closed with silk sutures; the lower angle, through which the ligatures were passed out, being left open for drainage purposes. The operation was a very trying one, lasting a little over two hours, during which time, notwithstanding the use of ether, it twice became necessary to resort to artificial respiration.

After-condition.—The patient rallied fairly from the operation, felt comfortably, and did not vomit, but within two hours the condition changed; a free flow of blood came from the open lower angle of the incision; the dressing was removed, and applied to the abdomen; the bleeding did not stop until the lips of the wound were freely touched with perchloride of iron; trouble seemed due to the cutaneous vessels and capillaries, which bled so freely in the beginning of the operation; the hemorrhage was checked for over an hour, but then the blood suddenly welled up from the depth of the cavity; several stitches were cut, and a careful examination made; there was no fluid in the cul-de-sac, no dulness in the pelvis, and the flow which came, at least partially, from the very vascular peritoneum, was finally stopped by ergot and ice.

She took stimulants and some little nourishment; did well for the first twenty-four hours following the operation, but after that, she slowly failed; pulse steadily increasing in frequency; death occurred on the third day.[1]

[1] I am under obligation for efficient assistance in the various operations to Drs. Hodgen, Baumgarten, Greiner, Engelmann, Sr., Green, Prewitt, Mudd, Nel-

A post-mortem examination was not permitted.

I have reported these cases in detail, as the operation is so recent a one that the unfortunate result, thrice successively fatal, must naturally lead us to inquire whether the operation was justifiable or not.

In no instance did I undertake the operation until I had myself vainly attempted to afford relief by local and general treatment, and unless the patients had for years before been under the care of competent physicians, who had been unable to stay the steady progress of their agonizing suffering.

In Case I. the ovaries were removed, to bring about the menopause, and thus check the reflex menstrual suffering, which had so greatly reduced the patient, and was rapidly hastening her end by exhaustion, if it did not lead to suicide.

Case II. was one of chronic ovaritis, in which the reflex suffering was intense and continuous, steadily increasing, confining the patient to bed, and rendering her, the wife of a working man, a helpless invalid, confined to her bed with the prospect of still greater trials awaiting her. The ovaries, especially the left, which was known to be in cystic degeneration, were also directly the seat of much pain.

Case III. was a typical case of chronic ovaritis and ovaralgia, with occasional attacks of cellulitis, in which the suffering was mainly confined to the region of the unquestionably diseased ovaries, without marked menstrual exacerbation; but this pain was such as to confine the patient to her bed, and to torture her constantly. It steadily increased, and Battey's operation was performed to remove the offending organs.

The operation did not prove to be an easy one in either of the cases, on account of the tension upon the broad ligaments and the adhesions binding down the ovaries. In the first case only could the ovaries be pulled up somewhat, partially into the incision; in the second, we were obliged to tie in the depth of the pelvic cavity; and in the third, the firm adhesion of the degenerate ovary with the broad ligament to the floor of the pelvis necessitated the exposure of the pelvic cavity, in order that it might be possible to complete the operation.

son, Evers, Schenk, Bierwirth, Kirchner, Hoffmann and Summa, but most especially to Dr. John T. Hodgen, for his advice and assistance in the after-treatment as well as the operation.

In the first case, the patient was a miserable wreck, a haggard, weak, worn-out woman, with but slight chances of surviving the serious operation, for which she prayed as her only hope. Death was almost an inevitable result, and it was for this reason that Dr. Sims at first differed with me as to the propriety of operating; not until he saw the patient in her agony did he advise the operation.

She died of inanition and an inability to overcome the shock of the operation. The post-mortem revealed but trifling signs of pelvic or peritoneal reaction.

The second was a bright mulatto, in whom the feeble power of resistence characteristic of her color was not increased by years of suffering. The fever was not high, peritonitis moderate, the pedicle in good condition.

In the third case, the operation was tedious and severe, and the patient weakened by the hemorrhage following, so that she succumbed to a comparatively slight reaction.

Notwithstanding the unfortunate termination, I consider that in these three cases the operation was not only justifiable, but that it was decidedly indicated and demanded.

THE INDICATIONS FOR BATTEY'S OPERATION, WITH A SUMMARY OF FORTY-ONE CASES OF EXTIRPATION OF THE OVARIES.

The operation has now been performed forty-one times, and I will but call attention briefly to the practical points brought out by an analysis of their more important features, as I have endeavored to tabulate them in such a way that comparisons can be readily made.

Table I. contains a list of forty-one cases, five of which (marked *) I was obliged to omit in the comparison of indications and results, so that Tables II. and III. are based upon an analysis of the thirty-six complete cases.

Number 19 (Sims) could not be utilized, as the operation was only attempted, but could not be completed; 39 and 40 (Hegar) were too recent to permit the statement of a result; and I may here say that my knowledge of Hegar's case is based upon occasional references in Hegar's articles in the *Centralblatt f. Gynäkologie.* A detailed account of the cases I could not obtain, and hence am not positive as to the correctness of

TABLE I.—LIST OF CASES.

Number of Case.	Operator.	Locality.	Number of Operator's Case.	Indications for Operation.	Abdominal or vaginal operation.	One or both ovaries removed.	Condition of ovaries when noted.	Result of Operation.
1	Battey.....	Georgia.....	1	Amenorrhea, menstrual molimen, convulsions, repeated pelvic cellulitis.	Abdominal.	Both.	.....	Cure complete.
2	.....	....	2	Persistent ovaralgia (left ovary.)	Vaginal.	One.	Cystic degeneration.	(Temporary relief) not improved.
3	.....	....	3	Continuous ovaralgia, endometritis, insanity threatened.	Vaginal.	Both.	.....	Cure complete.
4	.....	.....	4	Ovaralgia aggravated by menstruation or exertion.	Vaginal.	One.	Not entirely removed.	Somewhat improved.
5	....	.....	5	Ovaralgia, dysmenorrhea, coccyodynia.	Vaginal.	One.	.....	(Temporary relief) not improved.
6	. . ..	.....	6	Constant ovarian pain, ovarian dysmenorrhea, insanity threatened.	Vaginal.	Both.	.....	Died.
7	.....	.....	7	Constant ovarian pain, dysmenorrhea.	Vaginal.	Both.	....	Cure complete,
8	.....	....	8	Constant ovarian pain, irritable uterus, metritis, pelvic cellulitis.	Vaginal.	Both.	Bound down, not entirely removed.	Not improved.
9	.....	....	9	Second operation on Case 5.	Vaginal.	One.	Not entirely removed.	Not improved.
10	.....	.....	10	Constant ovarian pain, ovarian dysmenorrhea.	Vaginal.	Both.	.....	Died.
11	.....	....	11	Atresia vaginæ.	Abdominal.	Both.	... .	Cure complete.
12	.....	.....	12	Ovarian and pelvic pain, dysmenorrhea, epileptic convulsions.	Vaginal.	Both, right only partially removed.	.....	Not improved.
13	Sims	New York...	1	Dysmenorrhea, menorrhagia, retroflexion and hypertrophy of uterus. Uterine treatment failed.	Abdominal.	One.	Cystic.	Cure complete.
14	....	.....	2	Diarrhea, symptoms of fissure ani or of ulcer within the sphincter. Intense and ever-recurring recto-enteralgia.	Abdominal.	One.	Cystic.	Somewhat improved.
15	.....	.....	3	Dysmenorrhea, pain in sacro-pelvic region, ovarian pain aggravated by menstruation.	Vaginal.	One	.....	Worse.
16	....	.....	4	Dysmenorrhea, pelvic pain, anteflexion, ovarian pain.	Vaginal.	One.	Cystic.	Worse.
17	.....	... .	5	Ovarian pain aggravated during menstruation, retroversion.	Abdominal.	Both.	Cystic.	Died.

				sacral and pelvic regions, coccyodynia, photophobia.				
19*	.....	.....	7	Dysmenorrhea, ovarian and pelvic pain, hypertrophy of posterior wall of uterus, uterus bound down by adhesions.	Vaginal.	Operation abandoned.	Bound down.	Operation abandoned.
20	Hegar	Freiburg....	1	Ovaralgia.	Abdominal.	Both.	One cystic, other slightly changed	Died.
21	.....	.....	2	Uterine fibroids.	Abdominal.	Both.	.....	Greatly improved.
22	.....	.....	3	Uterine fibroids.	Abdominal.	Both.	.....	Greatly improved.
23	.....	.....	4	Uterine fibroids.	Lateral incisions directly over ovaries.	Both.	.....	Greatly improved.
24	Goodell.....	Philadelphia.	1	Uterine fibroids.	Vaginal.	Both.	.....	Cure complete.
25	.....	.....	2	Pernicious menstruation.	Vaginal.	Both.	.....	Somewhat improved.
26	.....	.....	3	Pernicious menstruation.	Vaginal.	Both.	.....	Died.
27	Thomas	New York...	1	Ovaralgia, dysmenorrhea, petit mal.	Abdominal.	Both.	Cystic.	Somewhat improved.
28	.....	.....	2	Dysmenorrhea, temporary insanity.	Attempted by vaginal, completed by abdominal.	One.	Enlarged.	Died.
29	Trenholm...	Montreal....	1	Hemorrhage from uterine fibroids. Intense dysmenorrhea from ovarian congestion.	Abdominal.	Both.	.....	Cure complete.
30	.....	.....	2	Chronic ovaritis and ovarian displacement.	Vaginal.	One.	.....	Not improved.
31	Peaslee.....	New York...	1	Absence of uterus, amenorrhea, pain on coitus, hystero-epilepsy.	Abdominal.	Both.	Cystic.	Died.
32	Sabine.....	New York...	1	Ovaralgia, dysmenorrhea, inability to step with left leg.	Abdominal.	One.	Normal.	Greatly improved.
33	Gilmore	Alabama....	1	Atrophy of uterus, amenorrhea, cerebral congestions with convulsions, threatening life. Increasing mental hebetude.	Abdominal.	Both.	.....	Cured (?)
34	Pallen.....	St. Louis....	1	Dysmenorrhea and persistent ovaralgia.	Abdominal.	Both.	Right, cystic; left, dislocated.	Died.
35	Engelmann..	St. Louis....	1	Gastric and bronchial hystero-neurosis, with intense menstrual exacerbation, retroflexion, metritis.	Abdominal.	Both.	Slightly enlarged.	Died.
36	....	.....	2	Ovaralgia aggravated by slightest exertion and by menstruation, dysmenorrhea, anteflexion, epileptiform attacks.	Abdominal.	Both.	Cystic, bound down.	Died.
37	.....	.....	3	Ovaralgia, ovarian dysmenorrhea, constant pelvic pain, anteflexion.	Abdominal.	Both.	Cystic, firmly bound down.	Died.
38*	Koeberle....	Strasburg....	1	Retroversion, constipation, neuroses.	Abdominal.	One.	.....	As regards position of uterus, good.
39	Hegar	Freiburg....	5	Uterine fibroid.	Abdominal.	Both.	.....	Too recent.
40*	.....	.....	6	Perioöphoritis, salpingitis, perimetritis.	Abdominal.	Both.	.....	Too recent.
41*	Kaltenbach & Freund.	.....	1	Uterine tumor.	Abdominal ?	Both ?	.....	Died.

every detail. 38 (Koeberle) does not belong here, as it was an accidental extirpation of the ovary, in order to facilitate the object of the operation, the fixing of the broad ligament in the abdominal incision, in order to straighten a very annoying retroflexion; 41 (Kaltenbach and Freund) I have no history of.

The most favorable view possible has always been taken in giving the results of cases.

TABLE II.

CLASS OF CASES OPERATED ON, AND RESULTS ACHIEVED.

RESULTS.	INDICATIONS.											
	Reflex Neuroses.		Hemorrhage Uterine Fibroids.		Malformation Sexual Organs.		Ovarian Dysmenorrhea.		Ovaritis, Ovaralgia, etc.		Total.	
	No. of cas.	Per cent.	No. of cas.	Per cent.	No. of cas.	Per cent.	No. of cas.	Per cent.	No. of cas.	Per cent.	No. of cas.	Per cent.
Cured	...	....	2	40	2	66.7	2	40.	2	10	8	22.8
Greatly improved	...	....	3	60	...	....	...	....	1	5	4	11.4
Somewhat improved	1	50.	...	....	...	....	1	20.	2	10	4	11.4
Not improved	...	....	...	....	...	....	...	....	6	30	6	17.2
Made worse	...	....	...	....	...	....	...	....	3	15	3	8.6
Survived operation	1	50.	5	100	2	66.7	3	60.	14	70	25	69.4
Died	1	50.	...	....	1	33.3	3	50.	6	30	11	29.6
Total	2	5.7	5	14.3	3	8.6	6	16.6	20	57.1	36	100

Table II. shows us that in 20 of the 36 cases, which have served for this compilation, the operation was performed on account of suffering caused by ovaritis and ovaralgia, and in 6 ovarian dysmenorrhea is given as the indication, so that we may say that ovarian disturbance was the cause assigned in 26 of the cases; uncontrollable hemorrhage and suffering from uterine fibroid led to the extirpation of ovaries in 5 cases; malformation of the sexual organs and menstrual molimina in 3 cases, and reflex neuroses in two. In 25 cases the ovaries were diseased, while in the other 11 they were normal and removed only to bring about the menopause.

The results of the operation, as regards its danger to life, are 11 deaths, 30.5 per cent, and 25 recoveries, 69.5 per cent; of the 25 patients who survived the operation, 16 were improved, 44.4 per cent of the whole number operated on, while 9 were not bettered, 25 per cent; to be more precise, of the 36 cases,

8, 22.2 per cent, were cured; 4, 11.1 per cent, were greatly improved, 4 somewhat improved; 6, 16.6 per cent, not improved, and 3 made worse.

The success is best and the percentage of death smallest in those cases in which both of the normal ovaries were removed

TABLE III.

METHODS OF OPERATION AND THEIR RESULTS.

RESULTS.	Ovaries Removed.				Mode of Operation. Incision.				Total.	
	Both.		One.		Abdominal		Vaginal			
	No. of Cases	Per cent.	No. of Cases	Per cent.	No. of Cases	Per cent	No. of Cases	Per cent.	No. of Cases	Per cent.
Cured	7	29 4/24	1	8 1/3	5	26 6/19	3	18 3/4	8	22 2/9
Greatly improved	3	12 1/24	1	8 1/3	4	21 1/19	....	....	4	11 1/9
Somewhat improved	2	8 8/24	2	16 2/3	2	10 10/19	2	12 1/2	4	11 1/9
Not improved	2	8 8/24	4	33 1/3	....	....	6	37 1/2	6	17 1/9
Made worse	....	....	3	25	....	....	3	18 3/4	3	8 1/3
Survived operation	14	58.4	11	91 2/3	11	57 11/19	14	82.4	25	71 7/9
Died	10	41.6	1	8 1/3	8	42 8/19	3	17.6	11	28 1/9
Total	24	66.6	12	33.4	19	54.4	17	47.2	36	100

to bring about the menopause and to check hemorrhage from uterine tumors; we have 5 such cases, all of which were improved (2 cured, 3 greatly improved); but one death has occurred, and that the case of Kaltenbach and Freund.

The operation seems to have been followed by a less favorable result in cases of ovaritis and ovaralgia with degeneration of the ovaries; 6 deaths, 30 per cent, out of 20 cases; and of the 14, 70 per cent who survived; 9, 45 per cent of the 20 cases, were not improved (3 were made worse, 6 not improved) and only 5, 25 per cent, were improved (2 cured, one greatly improved, 2 somewhat improved).

This is the most important class of cases, as it comprises the largest number, 20, 55.5 per cent, of all the cases operated on, and it is the one in which the operation is most naturally indicated, the ovaries themselves being diseased, and the seat of suffering. The ill success of the operation in these cases is self-evident, if we consider the method of operation resorted to in many and the condition of the pelvic organ; an analysis of these 20 cases will teach a valuable lesson and will lead to more successful results in future.

In cases in which the operation is performed on account of hemorrhage from uterine tumors, menstrual molimina with malformation of the sexual organs or reflex neurosis, the ovaries are, as a rule, neither diseased nor adherent; in the cases now under consideration the ovary is always diseased, generally consisting of a number of small cysts imbedded in the greatly altered stroma; it is bound down by adhesions, if not wholly imbedded in the remnants of an old hematocele or of a pelvic cellulitis.

In each of the 6 fatal cases, 30 per cent, both ovaries were removed; in those which are marked cured, both ovaries were removed; in the 3 improved, one ovary only was removed in two of the cases; the 3 made worse, are all cases of the removal of one ovary; and in the 6 cases not improved, only one ovary was completely removed; in 4 of them, one ovary only was extirpated; and in the other two, the attempt was made to remove both, but did not succeed on account of the adhesions, so that parts of one ovary were left in the pelvis.

The history of the operation in these 20 cases tells us that it is often difficult or impossible to remove both ovaries completely, and yet that both must be removed to secure success.

Next comes the operation to relieve the menstrual molimina in cases of malformation of the sexual organs; 3 cases, with 2 cures and 1 death.

It is hardly necessary to call attention to the comparative success in the cases in which one ovary was removed, and those in which both were removed. The extirpation of both ovaries is, of course, the more dangerous operation, the percentage of death being 38.4 per cent (10 in 26), while in the removal of one ovary, it is only 8.3 per cent (1 in 12); but what is the comparative success? All those who survived the removal of both ovaries were improved with the exception of 2, in whom it was impossible to remove the glands completely on account of the condition of the pelvic viscera, so that practically only one ovary was removed; 7, 30.5 per cent, were completely cured; 3, 13 per cent, greatly improved, 2, 8.7 per cent, somewhat improved; while in the cases in which only one ovary was removed, we find 7, 58.3 per cent, not improved (3 made worse, 4 not improved) and only 4, 33.3 per cent, improved (1 cured, 1 greatly improved, and 2 somewhat improved).

The same comparison may be made between the operations

by the abdominal and those by the vaginal section; the vaginal section is evidently somewhat the safer method, but far behind the abdominal in its results; 8 of the 19 patients, 42.1 per cent, operated on by the abdominal section died, while only 3 of the 17 vaginal sections proved fatal; 11, 58 per cent, of the abdominal sections were improved (5 cured, 4 greatly improved, 2 somewhat improved); not a single patient who survived the operation was not improved by it, while the vaginal method gives only 5 cases, 29.4 per cent, improved (3 cured [?] and 2 somewhat improved), but 9, 52.9 per cent, not improved (6 not improved and 3 made worse).

The success of the operation, when performed by the vagina, is very unsatisfactory, and, moreover, the method is unscientific, as it is so very difficult, mostly impossible, to determine the condition of the ovaries, so that we can say beforehand whether the operation can be completed by that route or not. We have 17 cases of vaginal section, 18, if we add case 19 (Sims), in which the operation was attempted by the vagina and abandoned; 6 of these 18 cases, 33.3 per cent, could not be completed; 2 were abandoned (19, Sims and 28, Thomas), which was completed by the abdominal method, and in 4 others (Battey), it was impossible to remove the ovary complete, and the operation was left practically unfinished; this uncertainty, to my mind, is sufficient to condemn the vaginal method.

The analysis of the above 36 cases, and the experience gained in my own operations, lead me to the following conclusions with reference to the indications for the operation, and some general rules to be observed in its performance:

INDICATIONS FOR THE OPERATION.

The operation is indicated only in certain grave cases of chronic uterine or ovarian disease, accompanied by intense suffering or uncontrollable reflex symptoms, in which all means of treatment in the hands of competent physicians have failed, so that the unhappy patient must drag out the miserable existence of a helpless and constantly suffering invalid, if she does not lose her reason or succumb to the tortures of the disease; it may then be undertaken, I., in order to establish the menopause; or, II., to remove the offending organs, frequently for both purposes.

I. *To establish the menopause*, in cases of uterine, ovarian,

or reflex suffering dependent upon, or greatly intensified by the menstrual congestion.

(*a. Ovaries not Diseased—Normal Ovariotomy Proper.*)

For this purpose the operation is indicated:

1. By menstrual hystero-neuroses, cerebral, pulmonary, gastric, or other reflex symptoms, associated with and dependent upon the monthly period of pelvic congestion (14, Sims; 35, Engelmann).

2. By dangerous hemorrhage, menorrhagia, or suffering caused by uterine tumors not suitable for removal (29, Trenholme; 21, 22, 23, Hegar; 24, Goodell.

3. By the absence of uterus or vagina, or other malformations of the sexual organs, when accompanied by distressing menstrual molimina (31, Peaslee; 11, Battey; 33, Gilmore).

(*b. Ovaries Diseased.*)

4. By ovarian dysmenorrhea and uterine or ovarian suffering limited to the catamenia, or greatly increased during the menstrual period (12, 25, 28, 34).

II. *To remove the offending organs*, when they are the seat of constant pain, independent of the monthly flow, although generally increased by it; these are cases of chronic ovaritis and ovaralgia with pelvic pain, which are marked by the most fearful and continued suffering, which is only intensified during the catamenia; the ovary itself is always diseased, generally in a state of cystic degeneration, and the object of the operation is not mainly to establish the menopause, but to remove those organs which, by their affection, are causing local suffering, and are involving in disturbance the entire nervous system.

In *ovarian hernia* the healthy ovary may be removed as the offending organ, but this is a class of cases not here to be considered (Koeberle, 38).

GENERAL RULES GOVERNING THE OPERATIONS.

I. *Operate by the abdominal section;* the operation can always be completed and the ovaries removed entire, whatever be the condition of the pelvic organs; a wider scope is given to the fingers and the instruments of the operator than through the vaginal incisions, and in the worst cases, when touch fails, the eye may help.

As a rule, the incision is made in the *linea alba*, but in case the ovaries approach the abdominal walls, and can be distinctly felt beneath them, the incision may be made at any point directly over the ovary; thus in case of hernia or of uterine tumors (23, Hegar). The semilunar incision in the side, which I would term the direct lateral method, is inferior to the median, although in closer proximity to the organ to be reached.

II. *The vaginal operation is admissible only in cases of displacement upon the vagina* (Trenholme, 30). Although the ovaries have been frequently and successfully removed by this method, which is decidedly less dangerous than the abdominal section, it is an uncertainty; almost all those cases in which Battey's operation is indicated, are cases of chronic pelvic suffering, and disease in which we find a pathological condition of those viscera, especially the ovaries, which are generally bound down by adhesions. Dr. Sims says: "If we are sure that there has been no pelvic inflammation, no cellulitis, no hematocele, no adhesion of the ovaries to the neighboring parts, then the operation may be performed by the vagina, but not otherwise."

It seems to me impossible to determine these conditions satisfactorily in all cases, and if we remember that bold and skilled operators and able diagnosticians, such as Marion Sims and T. Gaillard Thomas, have attempted this operation by the vagina and have failed, and that its originator, Robert Battey, had, in four instances, been unable to remove the ovary entire, and was obliged to leave a part of the degenerate and adherent organ in the pelvis, thus subjecting the patient to the dangers of the operation without affording relief, we cannot but consider the success of a vaginal operation as a piece of good luck.

The operator who seeks to remove the ovaries by this method must be very positive in his diagnosis, or he must trust in Providence for a favorable condition of the pelvic viscera.

III. *Remove both ovaries.* The removal of one ovary may almost be said to be needlessly subjecting the patient to the dangers of the operation, even if that one ovary is the seat of pain, and if that one ovary only is diseased; two successful cases are known in which complete relief followed the removal of one ovary (13, Sims', 32, Sabine), but generally we find the disease recurring in the other ovary, even if temporary amelioration be

obtained. Dr. Sims justly says that Battey's operations and his own would have presented very different results if they had not departed from the theory which Dr. Battey laid down in the very beginning, viz., to bring about a change of life by extirpating both ovaries.

In the cases of ovarian hernia, the prolapsed ovary is removed, one or both as the case may be, and the incision is made directly over the disturbing organ.

The operation, if properly completed, so that no remnants of ovarian tissue are left in the pelvis, is more difficult and more dangerous than has been generally represented. However great the dangers, experience will lessen them, and sufficiently favorable results have already been achieved, so that we may look hopefully to Battey's operation as a last, a desperate, but not unpromising resort in those distressing cases of female suffering dependent upon ovarian disease or menstrual congestion, which all treatment has failed to relieve.

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[1] This, the latest and most complete article on the subject, reached me when my paper had already gone to press, too late to make more than this short mention of it.

Battey's Operation;

A BRIEF SUMMARY

OF

RESULTS ACHIEVED IN THE FORTY-SEVEN CASES SO FAR REPORTED.

BY

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Since the publication of my paper on this operation in the July number of the *American Journal of Obstetrics*, "Battey's Operation: Three Fatal Cases, with Some Remarks upon the Indications for the Operation," I have received reports of six additional cases, making forty-seven in all, together with more complete notes upon some of those already tabulated, and I now wish to give a brief summary of the results of Battey's Operation, as they appear in the *forty-three* cases of which I have *full* notes; at the same time, (Table I.a), will supplement the list of cases given in my previous paper, which contained but 41. The histories of cases 39, 40 and 41, have been completed, and six new cases added, so that I have now 47 recorded. Of these 47 cases, 43 only could be utilized for an analysis of all the points to be eliminated in Tables II. a and III. a; these tables are identical with Tables II and III of the previous paper; the former, however, are based upon a comparison of 43 cases, while in the latter we have only 36. Case 19, Sims, is omitted, as the operation, begun per vaginum was abandoned, it being impossible to remove the adherent ovaries; 38, Kœberlé, can not be classed as one of Battey's Operations, and 43 and 44, Hegar, are too recent to permit a statement of the result to be given as yet.

TABLE I. a.

CONTINUED LIST OF CASES. SUPPLEMENT TO TABLE I.

No. of Case.	Operator.	Locality.	Number of Operator's case	Indication of Operation.	Abdominal or Vaginal Operation.	One or both Ovaries removed.	Condition of Ovaries when noted.	Result of Operation.
39	Hegar	Freiburg	5	Large, rapidly growing uterine fibromyoma.	Abdominal lateral, direct over ovar's	Both.	.....	At first improved, later growth of tumor, hemorrhage pain, fever.
40	.....	.....	6	Perioophoritis, salpingitis, perimetritis, retroflexio, dysmenorrhœa, ...	Abdominal	Both.	Cystic.....	Cured, menopause....., ...
41	Kaltenbach	.....	1	Uterine fibroid, ...	Abdominal	Both.	.....	Died.....
42	Freund	.....	1	Uterine fibromyoma.....	Abdominal	Both.	.....	Died.....
43	Hegar	Freiburg	7	Oophoritis, salpingitis, dysmenorrhœa, antiflexion.....	Abdominal direct at'l method.	Both.	.....	Too recent, apparently improving.
44	.....	.....	8	Dysmenorrhœa, ova algia.....	Abdominal	Both.	.....	Too recent, pain disappeared at once.
45	..	..	9	Uterine fibromyoma of rapid growth menorrhagia, pain	Abdominal	Both.	.....	Died.....
46	Martin....	Berlin...	1	Uterine fibromyoma, menorrhagia, metrorrhagia	Abdominal	Both.	Normal	Greatly improved; menopause; tumor decreasing.
47	..	..	2	Subserous uterine fibroids; dysmenorrhœa, pain, epileptic attacks ...	Abdominal *	Both.	Normal.	Greatly improved; menopause; tumor decreasing.

* Rectus abdominus of one side cut transversely to reach the ovary.

Omitting these four cases from the list of 47, 43 are left for the compilation of Tables II. a and III. a.

TABLE II. a.

CLASS OF CASES OPERATED AND RESULTS ACHIEVED.

Results.	Indications.											
	Reflex Neuroses.		Hemorrhage Uterine fibr'd		Malformation Sexual Organs		Ovarian Dysmenorrhœa.		Ovaritis, Ovaralgia &c.		Total.	
	No.	Per Ct	No.	Per Ct	No.	Pe. C.	No.	Per Ct	No.	Per Ct	No.	Per Ct.
Cured			2.	18.18	2.	66.66	2.	33.33	3.	14.28	9.	20.93.
Greatly Improved			5	45.4					1	4.76	6	13.95
Somewhat Improved	1	50	1	9.09			1	16.65	2.	9.52	5	11.62
Not Improved									6.	28.56	5	
Made Worse									3.	14.28	3.	6.98.
Survived Operation	1	50.	8.	72.72	2.	66.66	3.	50.	15.	71.41	29	67.44
Died	1	50.	3.	27.27	1.	33.35	3.	50.	6.	28.57	14	32.55
Total	2	4.65	11.	25.5.	3.	6.9	6.	13.95	21.	48.83	43	100

Table II. a shows the various affections which have served as indications for this operation and the results which have been achieved.

In twenty-one of the 43 cases the operation was performed on account of suffering due to ovaritis and ovaralgia, and in six on account of ovarian dysmenorrhœa, so that ovarian disturbance served as the indication in twenty-seven of the cases; next in frequency, suffering and uncontrollable hemorrhage, due to uterine fibroids and fibromyomata, led to the extirpation of the ovaries (11 cases)—a simpler operation than hysterotomy; malformation of the sexual organs and menstrual molimina in three cases, and reflex neuroses in two.

In 27 cases the ovaries were diseased, while in the other 16 they were normal, and removed only to bring about the menopause.

The results of the operation, as regards the danger to life, are 14 deaths, 32.5 per cent., and 29 recoveries, 67.4 per cent.; somewhat less favorable than it appeared in the previous analysis of 36 cases, which gave a mortality of 31.5 per cent. with 69.5 per cent. recovered.

Of the twenty-nine patients who survived the operation, 20 were improved, 46.5 per cent. of the whole number operated on, while 9 were not bettered, 20.9 per cent.; to be more precise, 9 were cured, 20.9 per cent., 6, 13.9 per cent. were greatly improved;

5, 11.6 per cent. somewhat improved; 6, 13.9 per cent. not improved, and 3, 6.9 per cent. made worse.

The happy result obtained in the first five cases in which both ovaries were removed to bring about the menopause and check hemorrhage from uterine tumors—all successful—has been somewhat marred by more recent records, three deaths occurring among the 11 patients operated on, 27.2 per cent., a mortality still somewhat below that found under other indications, and I would especially remark, that those who survived were all improved; 2 cured, 18 per cent.; 5 greatly improved, 45.4 per cent. and one only at first somewhat improved, and soon relapsing into the old condition.

In cases of ovaritis and ovaralgia with degeneration of the ovaries, we find a mortality of 28 per cent.; but of the 15 who survived this operation only 6 were improved, 28.5 per cent. of the 21 cases, while 9 were not improved 42.8 per cent. I may at once add that this unfavorable result is due to the extirpation of only one ovary, or to the incomplete removal of both in some of the earlier operations by the vaginal method.

Three of the six cases of ovarian dysmenorrhœa were relieved, three proved fatal.

In the three cases in which the operation was performed to relieve the menstrual molimina, in malformations of the sexual organs, we have two cures and one death.

TABLE III. a.

METHODS OF OPERATION AND THEIR RESULTS.

Results.	Ovaries Removed.				Mode of Operation. Incision.				Total.	
	Both.		One.		Abdominal		Vaginal.			
	No.	Per Ct.	No.	Per Ct.	No.	Per Ct.	No.	Per Ct.	No.	Per Ct.
Cured	8	25.8	1	8.3	6	23.	3	17.64	9	20.93
Greatly Improved	5	16.1	1	8.3	6	23.			6	13.95
Somewhat Improved	3	9.6	2	16.6	3	11.5	2	11.76	5	11.62
Not Improved	2	6.4	4	33.3			6	35.29	6	13.95
Made Worse			3	24.9			3	17.64	3	6.98
Survived Operation	18	58.	11	91.6	15	57.6	14	82.3	29	67.44
Died	13	41.9	1	8.3	11	42.3	3	17.64	14	32.55
Total	31	72.	12	28.	26	60.46	17	39.53	43	100.

The increase in the number of cases has made a slight change in the mortality as occurring in those operations in which both ovaries were removed, (Tab. III. a); the per centage of deaths as

obtained from the 36 cases of Tab. III, was 38.4 per cent.; ten of the 26 in which both ovaries were extirpated, while we have in the 43 cases, as shown by Tab. III. a, a mortality of 41.9 per cent.—13 of the 31 cases; 5, 16.1 per cent. were improved; 3, 9.6 per cent. somewhat improved; fortunately no additional cases are recorded of the removal of only one ovary, so that the per centage is unchanged; 1 in 12 died, 8.3 per cent.; 58.0 per cent. however, are not improved, and only 33.0 per cent. are improved to 51.5 per cent. improved by removal of both.

The correct tendency of the later methods of operation is also shown by the fact that the recent operations were all performed by the abdominal section.

The percentage of deaths remains the same, 42.3 per cent. of the abdomnial and only 17.6 per cent. of the partially incomplete vaginal sections proved fatal, but 57.5 per cent. of the abdominal sections were improved to 29.4 per cent. of those operated on by the vaginal method.

There are several points of a more general interest in the histories of the cases operated on by myself, to which I would again call attention, although they have been referred to in the previous paper. (*Am. Journal Obst.*, July, 1878, pp. 465, 466.)

The unilateral sweating, in case II, which I had occasionally observed, was on the affected side, the left, in which the patient located all her suffering and where the degeneration of the ovary had progressed farthest.

This is perfectly analogous with the the case of a gentleman I have recently seen; he is lamed on one leg, in consequence of an infantile paralysis, and occasionally, not at all times, exertion will produce unilateral sweating on that side of the face corresponding to the paralyzed extremity.

In case II, the repeated use of jaborandi, continued for almost a week, caused a decided increase of the symptoms; the right side remaining dry while profuse, cold perspiration invariably appeared on the entire affected left side.

I remark this, because Drs. Ringer and Bury, in their article on "The Effect of Pilocarpine (the Alkaloid of Jaborandi) on two cases of Unilateral Sweating,"* cite two cases, in most both of which the first injection of pilocarpine caused the most profuse sweating on the normal side, while further experi-

* Practitioner, Dec., 1876—ref. *American Journal of Medical Science*, April, 1877.

ment showed that the injection would sometimes be followed by more profuse sweating on the one side, sometimes on the other; one of the patients, in whom they could not determine the cause of the affection, was cured by the use of the Jaborandi, while in the other, an apoplectic, the abnormity was somewhat lessened, but not controlled.

The collapse which followed traction on the ovary, I first observed in case II, in a very marked degree, the pulse becoming so slow and feeble, respiration flagging, that chloroform was stopped and we were somewhat alarmed about the patient, until it was observed that as the traction was diminished she at once rallied, and that the same symptoms followed each traction on the ovary. In case III the phenomenon was not quite so marked.

The same symptoms have recently been several times observed by Dr. J. T. Hodgen, in operating for varicocele, whilst tightening the ligature; the appearances, at first, until their recurrence demonstrated the cause, were such that the anæsthetic was stopped and respiration stimulated.

These facts, once known and thoroughly understood, may save the operator some annoyance.

I have adopted the just suggestion of Marion Sims, and have spoken of the operation as *Battey's Operation*, because the difficulty which Sims refers to of finding a name sufficiently distinctive and characteristic of this operation, has not yet been remedied, and we, moreover, owe the operation to Battey. Battey's term, *Normal Ovariotomy*, is inapplicable, as it is in rare instances only that the ovaries are found to be in a normal condition in cases in which the operation is indicated; some have inappropriately spoken of it as *Spaying*, (extirpation of healthy ovaries,) and recently Hegar terms it *The Castration of Women*, less correct even than his predecessors in the choice of names, unless we allow a liberal deviation from the ordinary signification of the word castration.

It is ovariotomy proper, and *Ovariotomy* it should be called, were not that term now, by long continued usage, given to the operation for the extirpation of ovarian tumors; since this, the only distinctly correct term, analogous to that used for the removal of other organs, has already been adopted for a totally different operation, although upon the same gland, let this new operation be known by the name of its author.

There seems to be no dispute as to who this is, but there cer-

tainly is a disposition to evade an open acknowledgment.

I do not propose to enter upon any unnecessary arguments, as a plain statement of the facts in the case will allow every unprejudiced mind, to judge to whom the honor is due.

Prof. Hegar, of Freiburg, seems inclined to claim the operation, because he had once performed it a short time previous to Battey's first case, but the patient died, and with her the operation was buried—like the unsuccessful cases of others, this one was not published, nor did Hegar operate again until four years later, and not until Battey, Thomas, Gilmore, Sabine, Yandell and McClellan, Peaslee and Trenholme had given their experience to the world, and the operation had been discussed in many of the County and State Medical Societies of America; not until then did Hegar issue his first publication (Stahl, Die anticipirte Climax, *Deutsche Med. Wochenschrift*, No. 50, Berlin, Dec. 1876) and make known his first two cases in which he successfully removed the ovaries to control hemorrhage resulting from uterine fibroids; even in this adaptation of the operation was he anticipated by Trenholme, of Montreal, both in time of operation and of publication.

RESUME.

DATE.	OPR'TOR.	REMARKS.
July 27,	1872 Hegar's...	First case ovaries removed for ovaralgia, patient died.
Aug. 17,	1872 Battey's..	First case ovaries removed to relieve menstrual molimina; convulsions, repeated attacks of pelvic cellulitis—successful.
Sept.	1872 Battey'...	First publication.
Dec.	1876 Hegar's...	First publication.
Jan.	1876 Trenholme	First successfully removed the ovaries to check the otherwise uncontrollable hemorrhage due to uterine tumors.
July	1876 Trenholme	First published his case.
Aug.	1876 Hegar.....	First successfully removed ovaries to check hemorrhage due to uterine fibroids.
Dec.	1876 Hegar.....	First published his two cases.

LITERATURE.—SUPPLEMENTARY.

BUDIN and BEIGEL, ...	Review,.....	*Centralblatt fur Gyn*.....	March, 1878, No. 8.
MARTIN,....	Zur Ovariotomie	*Berliner Klinische. Wochenschrift*	April, 1878.
HEGAR	Die Castration die Frauen.	*Volkmann's Sammelung*.....	Nos. 15 & 16.
		Klin. Vortræge, 136-138.....	May 22, 1878.
ENGELMANN	The Difficulties and Dangers of Battey's Operati on...	*Trans. Am. Med. Association*	Read, June, 1878.
GOODELL,..	A Case of Spaying for Fibroi l Tumor of the Womb....	*Am Journal of Med. Sciences*	July, 1878.
ENGELMANN	Battey's Operation : Three Fatal Cases, with Some Remarks upon the Indications for the operation,.....	*American Journal of Obstetrics*	July, 1878.